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B1

7. (Amended) A structure according to claim 2 wherein the cells are selected from the group which comprises HEK-293 cells, genetically modified Chinese hamster ovary (CHO) cells, primary neuronal tissue such as hippocampus, dorsal root ganglia, superior cervical ganglia etc.; skeletal muscle; smooth muscle; cardiac muscle; immune cells; epithelia; endothelia.

8. (Amended) A structure according to claim 1 which comprises an ion channel having rapid activation and inactivation kinetics.

9. (Amended) A structure according to claim 1 having an ion channel which shows specificity for an ion selected from the group which comprises sodium, potassium, calcium, chloride.

10. (Amended) A structure according to claim 2 wherein the contiguous layer of cells is capable of adhering with a high resistance seal to a substrate selected from the group which comprises glass, plastics, rubber, polytetrafluoroethylene (PTFE), PTFE/glass fabric and polyethylene terephthalate (PETP).

11. (Amended) A structure according to claim 1 which comprises a pseudo-epithelium wherein one face of a contiguous layer of cells is permeabilized thereby providing access to the interior of the cells.

13. (Amended) A structure according to claim 1 wherein the substrate is perforated.

14. (Amended) A structure according to claim 1 which comprises a perforated coverslip.

15. (Amended) A structure according to claim 1 wherein the substrate has pores of diameters between 0.5µm and 10µm.

Q1  
cont

Q2

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18. (Amended) A structure according to claim 1 which comprises a coverslip having a grid of pores.

19. (Amended) A structure according to claim 1 which comprises a perforated substrate which is manufactured of a material selected from the group which comprises glass, plastics, rubber, polytetrafluorotethylene (PTFE), PTFE/glass fabric and polyethylene terephthalate (PETP).

20. (Amended) A biological membrane for use in the structure according to claim 1.

21. (Amended) A substrate for use in the structure according to claim 1.

22. (Amended) A high throughput screen for detecting and assaying compounds with activity on voltage gated ions channels which comprises a structure according to claim 1.

Sub B2  
of use

26. (Amended) A high throughput screen according to claim 22 which comprises a recording head having a single recording electrode capable of being moved to visit each chamber sequentially.

27. (Amended) A high throughput screen according to claim 22 which comprises a recording head having a plurality of recording electrodes arranged in a line.

28. (Amended) A high throughput screen according to claim 22 which comprises a recording head having a plurality of recording electrodes arranged in a matrix.

29. (Amended) A method of manufacturing the structure of claim 1 which comprises the steps of selecting a substrate, perforating it, introducing a biological membrane to the substrate and sealing each pore with biological membrane.

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